

0.02 weight % of an organic sulfide chelating agent, wherein the unbleached pulp is treated during bleaching, wherein said organic sulfide chelating agent is selected from the group consisting of polymeric dithiocarbamate chelating agents and salts thereof and mixtures thereof and wherein no treatment with organic sulfide chelating agent takes place during digestion of the wood chips and washing of the unbleached pulp.

9. In a method for making Chemical pulp comprising the steps of digesting wood chips in the digester to create unbleached pulp and then bleaching the pulp and subjecting the pulp to pressurized oxygen delignification; the improvement comprising treating the pulp with from about 0.002 weight % to about 0.02 weight % of an organic sulfide chelating agent, wherein the unbleached pulp is treated at the same time that it is undergoing pressurized oxygen delignification, wherein said organic sulfide chelating agent is selected from the group consisting of polymeric dithiocarbamate chelating agents and salts thereof and mixtures thereof and wherein no treatment with organic sulfide chelating agent takes place during digestion of the wood chips and washing of the unbleached pulp.

REMARKS

Applicants have herein cancelled claims 1, 3 and 5. Applicants have herein added Claims 7, 8 and 9 in order to specify that none of the polymeric dithiocarbamate is added to the chemical pulp

during digestion of the wood chips and washing of the unbleached pulp. Applicants believe no new matter is being added with these new claims and requests that they be entered.

Claims 1, 3 and 5 stand rejected under 35 U.S.C. §102(b) as allegedly being anticipated by, or in the alternative, under 35 U.S.C. §103(a) as allegedly being obvious over Canadian Patent No. 1,174,810. Applicants have herein cancelled Claims 1, 3 and 5 rendering this rejection moot. Accordingly, Applicants respectfully request withdrawal of this rejection and that a Notice of Allowance be sent for all pending claims.

In the interests of furthering prosecution of the pending claims, Applicants will make remarks of record now as to why Canadian Patent No. 1,174,810 does not render the instant claimed invention anticipated or obvious. The instant claimed invention is treating a chemical pulp with a polymeric dithiocarbamate either before or during bleaching or during pressurized oxygen delignification of the pulp, wherein no treatment with a polymeric dithiocarbamate is done during digestion of the wood chips to create an unbleached pulp and washing of this unbleached pulp.

In contrast the delignifying agents being added in the Canadian Patent are all added during digestion of the wood chips. Chemically speaking, in pulping/delignification, lignin is being depolymerized, mostly along its β -aryletheric bonds, through highly specific mechanisms involving nucleophilic substitution. Redox nucleophilic catalysts (e.g. anthraquinone) and strong nucleophiles (e.g., sodium sulfide, and polysulfides) serve as purveyors of the chemical reaction. These chemicals are stable under the conditions of pulping (normally, high temperature, pH, pressure), and their performance is not affected by minor admixtures of transitional metal ions. Therefore, the compounds that are used to accelerate pulping are not expected to be chelants.

Therefore, there is no teaching, discussion or suggestion in the Canadian Patent that could render the instant claimed invention anticipated. Furthermore, the Canadian Patent proposes a method to improve yield and properties of chemical pulp produced directly from wood chips by means of extensive removal of original lignin. It does not mention brightness of the pulp because, first of all, it is not a target of the pulping stage. The instant claimed invention specifically and exclusively covers the stage of pulpmaking that comes after digestion of wood chips to make unbleached pulp and washing of the unbleached pulp, which is bleaching of the pulp coming out of the wood pulping process.

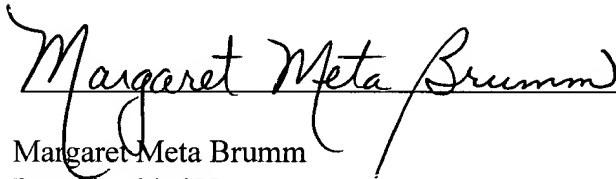
As for whether the teachings of the Canadian Patent could be used to render the instant claimed invention obvious under 35 U.S.C. §103, it is Applicants' position that the teachings of the Canadian Patent cannot be used to render the instant claimed invention obvious, because it is well known that chemical pulping and pulp bleaching are two profoundly different processes in the making of pulp and as such, there are almost no chemicals used to accelerate both processes. Bleaching is not delignification and not pulping, and the only analogy between the two processes is that wood is involved. It is known in the art of pulp making that if a chemical is effective as a pulping catalyst, there is absolutely no logical link that would suggest its activity in bleaching. Thus, 9,10-anthraquinone, a known pulping catalyst mentioned in the Canadian Patent does not affect any bleaching process in any appreciable way. The same can be said about other compounds mentioned in the Canadian Patent, such as thiourea and its derivatives, benzthioamide, thioacetamide, and thiouracyl. In a similar vein, conventional bleaching additives such as EDTA, DTPA and sodium silicate are not used in pulping to improve yield or pulp properties.

Based on the above Amendments and Remarks, Applicants courteously request that a Notice of Allowance be sent for Claims 7, 8 and 9.

CONCLUSION

Applicants submit the claims are in condition for Allowance and respectfully request that a Notice of Allowance be sent at the Examiner's earliest convenience.

Respectfully submitted,



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